

NOTE: If you own a 1985 model, first check the Supplement at the back of the book for any new service information.

CHAPTER SEVEN

ELECTRICAL SYSTEM

This chapter contains operating principles and service and test procedures for all electrical and ignition components. Information on the battery and spark plugs is covered in Chapter Three.

The electrical system includes the following systems:

- Charging system (models with a battery).
- Ignition system.
- Starting system (models so equipped).
- Lighting system.

Tables 1-4 are at the end of this chapter. Wiring diagrams are at the end of the book.

CHARGING SYSTEM (MODELS SO EQUIPPED)

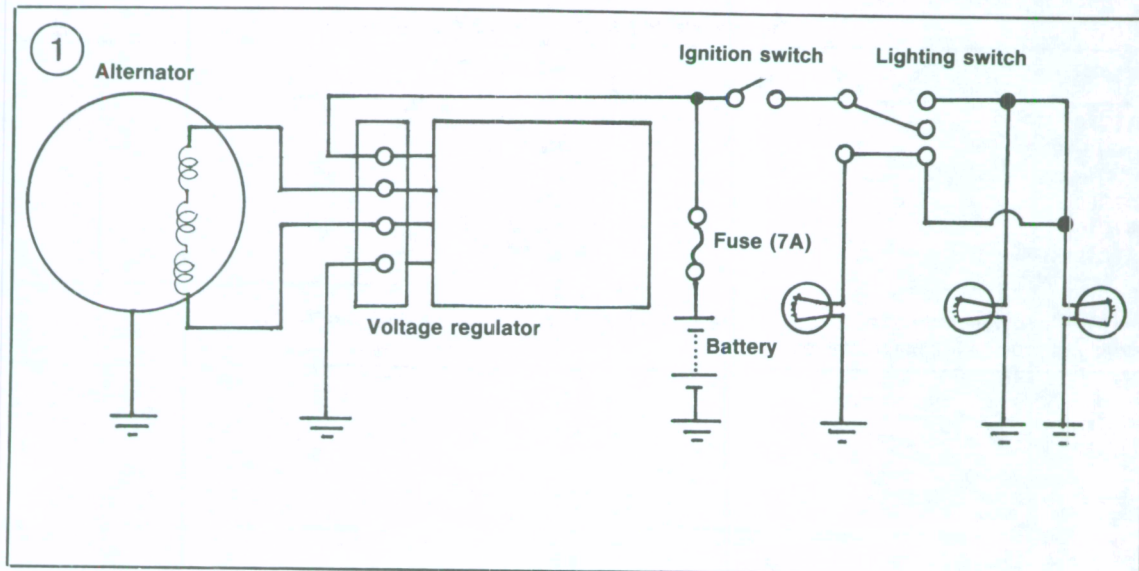
The charging system consists of the battery, alternator and a solid-state voltage regulator/rectifier. Figure 1 shows a typical charging system.

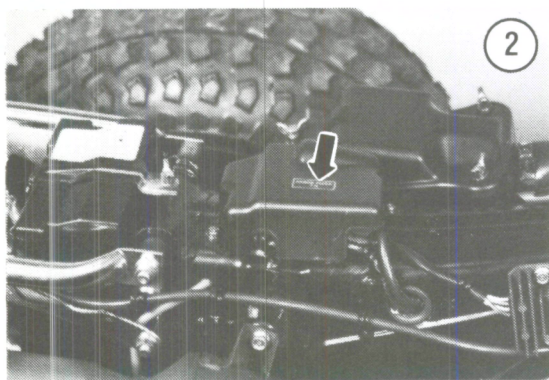
Alternating current generated by the alternator is rectified to direct current. The voltage regulator maintains the voltage to the electrical load (lights, ignition, etc.) at a constant voltage regardless of variations in engine speed and load.

Charging System Output Test

Whenever a charging system trouble is suspected, make sure the battery is fully charged and in good condition before going any further. Clean and test the battery as described in Chapter Three.

- Start the ATC and let it reach normal operating temperature; shut off the engine.
- Place the ATC on level ground and set the parking brake.
- Remove the seat/rear fender assembly.
- Remove the screw securing the starter relay cover and remove the cover (Figure 2).





5. Remove the wing nut (**Figure 3**) securing the battery holder and cover. Remove the battery cover.

6. Disconnect the red battery wire at the main fuse (**Figure 4**).

7. Leave the battery wires connected to the battery and connect a 0-15 DC voltmeter between the battery terminals (**Figure 5**).

8. At the main fuse connect a 0-10 DC ammeter to each end of the red wires as shown in **Figure 5**.

NOTE

During the test, if the needle of the ammeter reads in the opposite direction on the scale, reverse the polarity of the test leads.

9. Start the engine with the recoil starter and let it idle. Increase engine speed to 5,000 rpm. At this engine speed the meters should read 4.5 amps and 14 volts. If the charging current is considerably lower than specified, check the alternator and/or the regulator. Less likely is the possibility that the voltage is too high; in that case the voltage regulator is probably at fault.

10. Test the separate charging system components as described under the appropriate headings in this chapter.

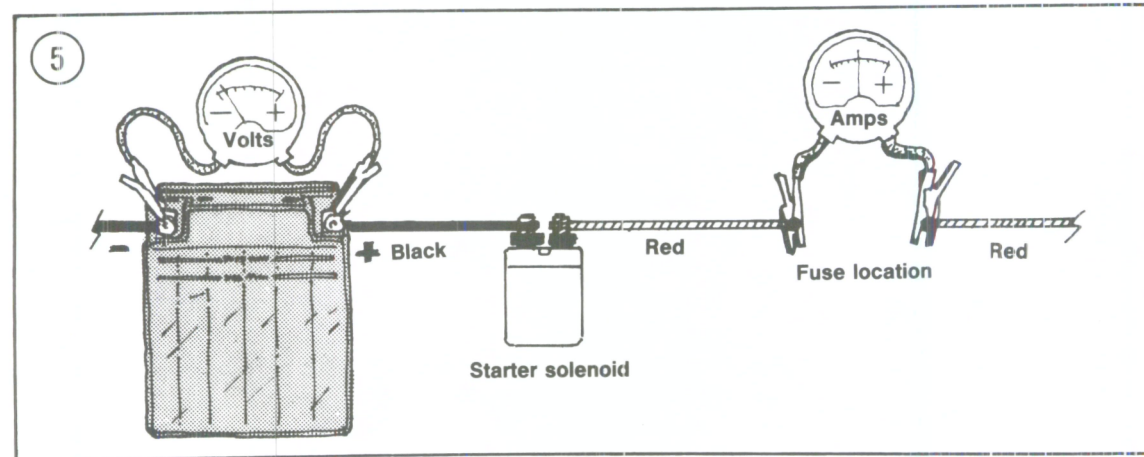
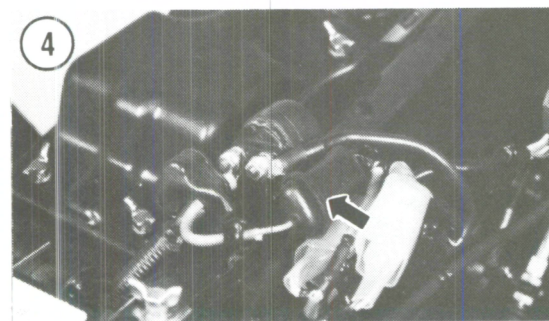
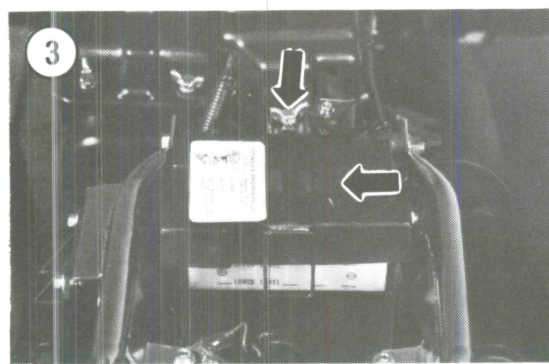
11. After the test is completed, disconnect the voltmeter and ammeter.

12. Reconnect the red battery wire at the main fuse.

13. Install all items removed.

ALTERNATOR

The alternator is a form of electrical generator in which a magnetized field called a rotor revolves within a set of stationary coils called a stator. As the rotor revolves, alternating current is induced in the stator. The current is then rectified and used to



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